

CHAPTER 3J. RUMBLE STRIP MARKINGS

Section 3J.01 Longitudinal Rumble Strip Markings

Support:

⁰¹ Longitudinal rumble strips consist of a series of rough-textured or slightly raised or depressed road surfaces intended to alert inattentive drivers through vibration and sound that their vehicle has left the travel lane. Shoulder rumble strips are typically installed along the shoulder near the travel lane. On divided highways, rumble strips are sometimes installed on the median side (left-hand side) shoulder as well as on the outside (right-hand side) shoulder. On two-way roadways, rumble strips are sometimes installed along the center line.

⁰² This Manual contains no provisions regarding the design and placement of longitudinal rumble strips. The provisions in this Manual address the use of markings in combination with a longitudinal rumble strip.

Option:

⁰³ An edge line or center line may be located over a longitudinal rumble strip to create a rumble stripe.

Standard:

⁰⁴ **The color of an edge line or center line associated with a longitudinal rumble stripe shall be in accordance with Section 3A.05.**

⁰⁵ **An edge line shall not be used in addition to a rumble stripe that is located along a shoulder.**

Support:

⁰⁶ Figure 3J-1 illustrates markings used with or near longitudinal rumble strips.

Section 3J.02 Transverse Rumble Strip Markings

Support:

⁰¹ Transverse rumble strips consist of intermittent narrow, transverse areas of rough-textured or slightly raised or depressed road surface that extend across the travel lanes to alert drivers to unusual vehicular traffic conditions. Through noise and vibration, they attract the attention of road users to features such as unexpected changes in alignment and conditions requiring a reduction in speed or a stop.

⁰² This Manual contains no provisions regarding the design and placement of transverse rumble strips that approximate the color of the pavement. The provisions in this Manual address the use of markings in combination with a transverse rumble strip.

Standard:

⁰³ **Except as otherwise provided in Section 6F.87 for TTC zones, if the color of a transverse rumble strip used within a travel lane is not the color of the pavement, the color of the transverse rumble strip shall be either black or white.**

Guidance:

⁰⁴ *White transverse rumble strips used in a travel lane should not be placed in locations where they could be confused with other transverse markings such as stop lines or crosswalks.*

Section 3J.101(CA) Rumble Strips

Support:

Rumble strips are bands of raised material or indentations formed or ground into the traveled way, on the centerline or shoulders. Rumble strips call the motorist's attention to standard warning or regulatory devices or otherwise alert drivers by transmitting sound and/or vibration through the vehicle.

Option:

Rumble strips may be used in the traveled way on California's streets and highways if the traffic engineer considers their use as the optimal solution to the identified problem.

Rumble strips may be used upstream of stop-controlled or signalized intersections if one or more of the following conditions exist:

- Engineering judgment indicates a special need due to sight distance restriction.
- High approach speeds.
- History of Ran-Stop-Sign crashes.

Guidance:

The use of rumble strips on State highways should be reviewed by the Department of Transportation's District Traffic Engineer or their representative.

Option:

Rumble strips may be incorporated into rehabilitation projects to replace existing rumble strips without an extensive review.

Guidance:

Requests should include a description of location, reasons for use, the alternatives which were considered, collision history and a discussion of standard traffic control devices which have been or are in place.

Traveled Way Rumble Strips:

Support:

Rumble strips on the traveled way are 0.75 inch or less in height if raised or 1 inch or less in depth if rolled-in indentations, 0.33 inch +/- 0.06 inch if ground-in indentations and generally extend across the travel lanes.

A ground in rumble strip with the dimensions shown above has been field reviewed to confirm ride-ability for bicyclists & motorcyclists.

There are several significant disadvantages to the use of rumble strips across the travel lanes. These include:

- An abrupt rise in the roadway can present problems to bicyclists and motorcyclists. For this reason, there should be provisions made for cyclists to safely traverse through or around raised rumble strips.
- Nearby residents may be subjected to noise.

Typical locations where rumble strips on the traveled way have been used include:

- End of a freeway.
- In advance of toll booths.
- Within a construction zone in advance of the workers.
- In advance of a "T" Intersection where the motorist is not expecting to stop.

Shoulder Rumble Strips:

Support:

Shoulder rumble strips are 0.75 inch or less in height if raised 1 inch in depth for rolled-in indentations and 0.33 inch +/- 0.06 inch for ground-in indentations that extend along the highway shoulder. The maximum width of shoulder rumble strips is 12 inch for both rolled-in and ground-in indentations.

Guidance:

Where bicycles are permitted, shoulder rumble strips should not be used unless approximately 5 feet of clear shoulder width for bicycle use is available between the rumble strips and the outer edge of the shoulder.

Standard:

Ground-in rumble strip treatments that are greater than 0.33 inch +/- 0.06 inch depth shall not be installed on shoulders where bicyclists are allowed.

Option:

Research findings indicate that the use of rumble strips on shoulders of freeways in remote areas may reduce drift-off-road collisions. Drifting off the road is most likely to be a problem on freeways with few interchanges and long tangents. Rumble strips may be used on other roadway types as well to address drift off roadway collisions at locations where they are a concern. The rumble strips may consist of grooves rolled into the hot mix as part of a resurfacing project, ground-in indentation in Portland Concrete Cement or Asphalt Concrete in existing roadway shoulders, or the application of a raised and inverted profile thermoplastic.

Guidance:

When roadways in remote areas are to be resurfaced, consideration should be given to the drift-off-road problem and the use of rumble strips considered.

Option:

Table 3J-101(CA) may be used by the District Traffic Engineer as a guide to determine the appropriate rumble strip treatment for various shoulder types.

Centerline Rumble Strips:

Support:

Centerline rumble strips are currently being used experimentally at 2 and 3 lane locations in California and across the nation as a tool to address drift across the centerline collisions.

Option:

The District Traffic Engineer may consider the use of centerline rumble strips with other considerations as a means of addressing drift across the centerline collisions.

Figure 3J-1. Examples of Longitudinal Rumble Strip Markings

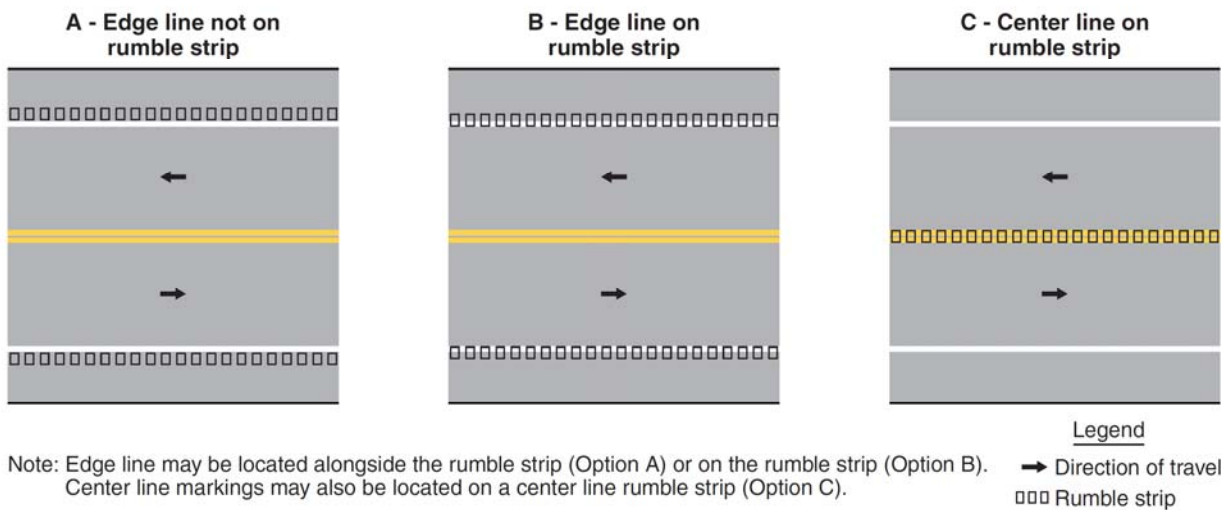


Table 3J-101(CA). Rumble Strip Installation Guide

Rumble Strip Treatment	Rumble Strip Depth	Shoulder Type	Bicycles Permitted	Minimum Shoulder Width
Rolled-In Rumble Strip Treatment Standard Plan A40	1 inch	ACC Only	YES	5 feet
			NO	4 feet
Ground-In Rumble Strip Treatment Standard Plan A40	0.33 in (+/- 0.06 in)	ACC and PCC	YES	5 feet
			NO	4 feet
Raised and Inverted Profile Thermoplastic	N/A	ACC and PCC	YES	No Minimum
			NO	No Minimum
Centerline Ground-In Rumble Strip Treatment Experimental	0.33 in (+/- 0.06 in)	ACC and PCC	N/A	N/A

Note: Ground-In Rumble Strip Treatments that are greater than 0.33 in (+/-0.06 in) in depth shall not be installed on shoulders where bicyclists are allowed.